What is claimed is:

1. A Y_2O_3 sintered material comprising 99.9% by weight or more Y in terms of Y_2O_3, wherein a difference in crystal grain size between the surface and the inside region is not larger than 30 μm.

2. A corrosion resistant member comprising a Y_2O_3 sintered material that includes 99.9% by weight or more Y in terms of Y_2O_3, wherein a difference in crystal grain size between the surface and the inside region of said Y_2O_3 sintered material is not larger than 30 μm.

3. The corrosion resistant member according to claim 2, wherein said Y_2O_3 sintered material comprises at least metal element of AE (AE represents group II elements of the periodic table).

4. The corrosion resistant member according to claim 3, wherein said Y_2O_3 sintered material further comprises any one of Si, Fe and Al.

5. The corrosion resistant member according to claim 2, wherein said Y_2O_3 sintered material further comprises any of a group of metallic elements consisting of Si, Fe, Al and AE

(these metallic elements will hereinafter be collectively referred to as metal elements M), in concentrations of 300 ppm of less for Si in terms of SiO_2, 50 ppm or less for Fe in terms of Fe_2O_3, 100 ppm or less Al in terms of Al_2O_3 and 350 ppm or less AE in terms of AEO.

6. The corrosion resistant member according to claim 5, wherein the content ratio of any of the metal elements M contained at and near the surface to that contained deep inside of said Y_2O_3 sintered material is in a range from 0.2 to 5.

7. The corrosion resistant member according to any one of claims 2 to 6, wherein said Y_2O_3 sintered material shows dielectric loss tangent of 2×10^{-3} or less in a frequency range from 10 MHz to 5 GHz.

8. The corrosion resistant member according to any one of claims 2 to 7, wherein the carbon content in said Y_2O_3 sintered material is 100 ppm by weight or less.

9. The corrosion resistant member according to any one of claims 2 to 8, wherein said Y_2O_3 sintered material has void ratio of 5% or less.

10. The corrosion resistant member according to any one of claims 2 to 9, wherein said Y_2O_3 sintered material has density of 4.8 g/cm^3 or higher.

11. A method for manufacturing a corrosion resistant member comprising:

preparing a powder having a mean particle size of 1 μm or less that comprises 99.9% by weight of Y_2O_3 with the rest including any of SiO_2, Fe_2O_3, Al_2O_3 and AEO,

forming the powder into a compact,

heating the compact at a rate of 50°C per hour or less, and

firing the compact at a temperature from 1500 to 2000°C.

12. The method for manufacturing a corrosion resistant member according to claim 11, wherein the compact is placed on a firing fixture that has melting point higher than 2000°C.

13. The method for manufacturing a corrosion resistant member according to claim 11 or 12, wherein the powder contains all of SiO_2, Fe_2O_3, Al_2O_3 and AEO, in concentrations by weight of 250 ppm of less for SiO_2, 40 ppm or less for Fe_2O_3, 50 ppm or less for Al_2O_3 and 250 ppm or less for AEO.

14. A member for a semiconductor/liquid crystal

manufacturing apparatus comprising the corrosion resistant member according to any one of claims 2 to 10, wherein said corrosion resistant member is used in an atmosphere where said corrosion resistant member is exposed to a corrosive gas containing a halogen element or plasma thereof.